CHONG, GENEVA W., and THOMAS J. STOHLGREN. National Biological Service, Natural Resource Ecology Laboratory, Colorado State University, Ft. Collins, CO, 80523, USA. Measuring plant species change at landscape scales: Landscape-scale Gap Analysis.

Statewide Gap Analysis uses large minimum mapping units (typically 100 ha to 1 km^2) and may ignore small (perhaps uniquely important) habitat patches, most seral/successional stages, gradual ecotones, and other important landscape features (e.g., small wetlands and riparian zones). Our Landscape-scale Gap Analysis techniques (60 m grid) not only test the community type distribution maps generated by statewide Gap Analysis, but also provide detailed information on abundance, condition, and fine-scale spatial and temporal trends of understory plant diversity. Preliminary results include: (1) successful consolidation of existing data in and adjacent to Rocky Mountain National Park, Colorado; (2) a new, standardized, multi-scale vegetation sampling technique; (3) a cost-effective, statistically valid method for assessing the accuracy of maps created from remotely sensed data using double sampling; and (4) evidence of keystone ecosystems that contain species-rich or unique plant species assemblages (e.g., burned areas, elk exclosures, and riparian zones). Burned areas in forests and riparian zones had 4 and 2 times the plant species richness, respectively, than nearby sites. Plant species richness in and adjacent to 17-year elk exclosures was similar, but percent cover varied, especially for non-native plants. Predicting and validating patterns of plant diversity at landscape scales are facilitated by our nested vegetation sampling design and long-term study plots.